



Information Bulletin

Governor's Office of Emergency Services

Law Enforcement Branch

P. O. Box 419047

Rancho Cordova, CA 95741

Michael Guerin, Chief

INTEROPERABILITY: CURRENT LAW ENFORCEMENT MUTUAL AID RADIO SYSTEMS

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Background

With the current focus on "interoperability" it might be useful for law enforcement personnel to review currently available radio systems that allow for agencies from different departments and/or disciplines to communicate. This Information Bulletin will discuss systems, not specific radio vendors or technologies. In after-action reviews of emergency operations by law enforcement agencies, a frequent finding is that law enforcement agencies failed to fully utilize existing mutual aid radio systems. In many cases, the agency had them available. Lack of use can be due to a need for training, or a lack of knowledge of the common names of these channels in the agency's radios. Experience shows that such systems need to be used frequently, even in less than catastrophic situations so that officers can remain familiar with them, and that the designator for the channel needs to be constant across the radios of each agency to prevent the problem of field units from different agencies not knowing they have the channel in common.

This Bulletin will provide synopsis information on each. More complete information is available by contacting the OES Law Enforcement Branch. Technical questions will be referred to the OES Telecommunications Section in the Operations Support Branch.

CLEMARS - California Law Enforcement Mutual Aid Radio System

What began in the 1960's as a single channel is now a collection of dedicated mutual aid radio channels. The original concept was simple: one radio channel that every law enforcement officer in the state could switch to. Complicating this concept, however, was the march of technology with law enforcement agencies moving off the frequency band in which the original CLEMARS channel was established (VHF High Band.) Even at its inception, agencies in the VHF Low Band (30 - 50 MHz.), such as CHP, were initially unable to use the channel.

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(CLEMARS Continued.) Then agencies began "migrating" to "new" frequency bands such as UHF, the 800 and 700 MHz frequency bands. This set of circumstances led to today's CLEMARS set of channels. The concept remains the same - to offer dedicated mutual aid radio channels to California law enforcement.

Now there are one or more CLEMARS channels in each frequency band, from the VHF Low Band to 800 MHz.

NALEMARS - National Law Enforcement Mutual Aid Radio System

Actually one of the CLEMARS channels, this concept began as a national trend in the 1970's - again for a single mutual aid channel for law enforcement agencies on a *nationwide* basis. Again, the shortcoming was that it was in one frequency band. As agencies moved their radio systems out of the VHF High band, this frequency was out of reach to them, and the concept of one channel for all was diluted. Even so, this channel is used by many states including California.

CALCORD - California on Scene Coordination Channel

As an adjunct to the other mutual aid channels dedicated to law enforcement, in the 1980's California realized that some situations such as hazardous materials spills require the use of resources other than law enforcement. A need was identified for an on-scene channel to coordinate the work of multiple disciplines that might be involved. Hence, CALCORD was developed to allow two-way radio communication between law enforcement, the fire service, emergency medical, public works - whatever services were involved in the specific scene of operations. The limitation is that this too is only on one frequency band.

CLERS - California Law Enforcement Radio System

This system of frequencies has a somewhat different orientation. While the channels described above are for use by individual officers and deputies, CLERS is a network of channels designed to tie together law enforcement dispatch centers. In the 1960's, CLERS was tied to the state microwave radio system in such a way that a department in one part of the state could "dial in" another agency, communicating solely on the radio and microwave system, and never using the public telephone system. In some areas of California agencies still maintain their CLERS equipment to do this while in other parts of the state agencies have adapted their use of the system. In some locales, agencies have removed their dial pads, but operate the system as a local dispatcher's "hot line" using the local CLERS repeater in a "stand alone" mode. This effectively ties together all dispatch centers in the geographic area so that they can each share information on rapidly evolving situations such as pursuits, crime broadcasts, etc.

(CLERS Continued.) OES and the State Department of General Services continue to maintain the CLERS repeaters throughout the state, but as the system is not widely used in some areas, there have been discussions as to how best to reutilize these frequencies. California law enforcement, as a group, needs to be involved in the decisions as to the future of CLERS. (Mobiles and portables are not allowed on CLERS.)

"National SAR Channel"

This is a special case. Many counties with search and rescue teams have the capability to tune to a channel known to some as "SAR Channel." This is really not a mutual aid radio channel, but will be included here for clarity. This VHF high band channel is really a two-way radio channel used most widely by ambulance companies. Several decades ago, law enforcement search and rescue teams began obtaining licenses on this channel after a major association recommended this become the "standard" for SAR use. Many teams do have this channel, but it is not universal, nor is this a state-sponsored channel as are those listed above. It is, however, worth considering as it does allow SAR teams from a variety of agencies to communicate with each other during a search and rescue mission. Agencies wishing to use this channel must apply for and receive a license from the Federal Communications Commission.

Other State Mutual Aid Channels

There are a few other mutual aid channels used in California:

“White Channels” - Three VHF High Band channels for various fire agencies to communicate with one another.

CESRS - California Emergency Services Radio System - This is a set of frequencies and repeaters allowing County Emergency Operations Centers and California OES to coordinate and share information during disasters.

“I-CALL” and “I-TAC” Channels – Five frequency pairs in the 800 MHz band designated as International Calling and Tactical channels for Interoperability / Mutual Aid use. The channels have been adopted for this use by Canada, the United States, and Mexico.

CMARS - California Multi-Agency Radio System - A state-operated set of frequencies for use by small state agencies unable to support their own radio systems. This 800 MHz system has repeaters in various parts of the state. The California Department of General Services' Telecommunications Division coordinates participation.

Statewide Interoperability Executive Committee

Coordinating the systems, and moving each into the future is a Statewide Interoperability Executive Committee. An outgrowth of what had been the CLEMARS Executive Committee, this committee has wide representation from a variety of public safety operations and telecommunications interests, all working to provide California law enforcement, and all public safety agencies, the most efficient mutual aid radio system possible.

In Closing

To use these channels, your agency must have a license, or operating authority granted by the license holder, such as in the case of the CLEMARS channels. For further information, you may contact the OES Law Enforcement Branch at (916) 845-8700 for general questions, or the OES Telecommunications Section at (916) 845-8600 for technical or licensing questions.

Glossary

“VHF Low Band”	30 – 50 MHz
“VHF High Band”	150 – 174 MHz
“UHF Band”	450 – 512 MHz
“700 MHz”	746 – 806 MHz
“800 MHz”	806 – 869 MHz

Michael Guerin, Don Root and Charlie Simpson developed and edited this material.

SYSTEM	Base/Mobile/Portable	Usage	License
CLEMARS <ul style="list-style-type: none"> 39.460 / 45.860 154.920 154.935 460 / 465.025 868 / 824.5125 484.2375 in L.A. Basin only 866 / 821.2000 in Northern CA only 	All	Communications between law enforcement units of same or different agencies; emergency, planned event use primary, administrative use secondary	Licenses held by the State of California; Contact OES Telecommunications [(916) 845-8630] for authorization process
NALEMARS <ul style="list-style-type: none"> 155.475 <i>May be paired for cross-band repeat in command / coordination systems.</i>	All	National channel; in California, part of CLEMARS; same conditions, but no administrative use.	Licenses held by the State of California; Contact OES Telecommunications [(916) 845-8630] for authorization process
CALCORD <ul style="list-style-type: none"> 156.075 	Mobile or portable only	Interoperability for responders to an incident or an emergency, in accordance with an approved local or regional use plan.	Licenses held by the State of California; Contact OES Telecommunications [(916) 845-8630] for authorization process
CLERS <ul style="list-style-type: none"> Varies by area 	Base stations and Command Post vehicles only	Point to point between Law Enforcement Operations Centers or Dispatch Centers	Licenses held by users Apply for system use authorization through OES Telecommunications; then obtain FCC License directly
SAR Channel <ul style="list-style-type: none"> 155.160 	All	Channel used by many search and rescue teams; also used by many school districts (busses) and ambulance companies	Obtain license direct from FCC
CESRS <ul style="list-style-type: none"> 153.755 / 154.980 	Base only; state and counties can have mobiles, portables	Point to point and coordination channel for state and county emergency management	Licenses held by the State of California; Contact OES Telecommunications [(916) 845-8630] for authorization process
I-CALL and I-TAC Interoperability Channels <ul style="list-style-type: none"> 866 / 821.0125 866 / 821.5125 867 / 822.0125 867 / 822.5125 868 / 823.0125 	All	Interoperability for responders to an incident or an emergency, in accordance with an approved local or regional use plan.	Licenses held by the State of California; Contact OES Telecommunications [(916) 845-8630] for authorization process
CMARS <ul style="list-style-type: none"> Varies by area 	State agencies only; base/mobile/portable	Administrative use by state agencies	Contact your DGS Telecommunications Division Client Rep.